

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1. (Original) A tunable interferometer comprising:

a beam splitter for producing first and second write beams from an input beam;

first and second reflectors for receiving the first and second write beams, respectively, from the beam splitter and directing the first and second write beams to intersect at a fixed location with an angle of intersection which is a function of impingement locations of the first and second write beams on the first and second reflectors, respectively; and

means for varying the impingement locations of the first and second write beams on the first and second reflectors;

wherein the means for varying the impingement locations comprises a tuning element for varying a point of impingement of the input beam on the beam splitter to cause the impingement locations of the first and second write beams on the first and second reflectors to vary, wherein the first and second reflectors have fixed positions, and wherein the beam splitter and the first and second reflectors are integrated in a single structure.

Claim 2. (Canceled).

Claim 3. (Canceled).

Claim 4. (Canceled).

Claim 5. (Currently amended) The interferometer of claim [[2]] 1, wherein the tuning element comprises a rotatable mirror.

Claim 6. (Currently amended) The interferometer of claim [[2]] 1, wherein the tuning element comprises an acousto-optic modulator capable of providing angle tuning of the input beam.

Claim 7. (Currently amended) The interferometer of claim [[2]] 1, further comprising at least one lens located between the tuning element and the beam splitter for directing the input beam from the tuning element to the beam splitter.

Claim 8. (Original) The interferometer of claim 1, wherein the beam splitter comprises a 50/50 beam splitter which transmits 50% of the input beam as the first write beam and reflects 50% of the input beam as the second write beam.

Claim 9. (Canceled).

Claim 10. (Original) The interferometer of claim 1, wherein the first and second reflectors are curved reflectors.

Claim 11. (Original) The interferometer of claim 1, wherein the first and second reflectors are planar reflectors.

Claim 12. (Original) The interferometer of claim 1, wherein the input beam is a laser beam.

Claim 13. (Currently amended) A system for creating gratings having interference patterns of variable periodicity in an optical waveguide, the system comprising:

- a light source for providing an input beam;
- a beam splitter for producing first and second write beams from the input beam;
- first and second fixed reflectors for receiving the first and second write beams, respectively, from the beam splitter and directing the first and second write beams to intersect at a fixed location with an angle of intersection that is a function of impingement locations of the first and second write beams on the first and second fixed reflectors; and

- a tuning element for varying a point of impingement of the input beam on the beam splitter to vary the impingement locations of the first and second write beams on the first and second fixed reflectors;

wherein the first and second fixed reflectors and the beam splitter are integrated in a single structure.

Claim 14. (Original) The system of claim 13, wherein the light source is a laser beam.

Claim 15. (Original) The system of claim 13, further comprising:

a device for causing relative longitudinal motion of the optical waveguide with respect to the fixed location to create chirped gratings.

Claim 16. (Original) The system of claim 13, wherein the tuning element is a rotating mirror mounted on a piezoelectric element.

Claim 17. (Original) The system of claim 13, wherein the tuning element is an acousto-optic modulator.

Claim 18. (Original) The system of claim 13, wherein the first and second fixed reflectors have a curved surface of incidence.

Claim 19. (Original) The system of claim 13, wherein the first and second fixed reflectors have a flat surface of incidence.

Claim 20. (Canceled).

Claim 21. (Currently amended) The system of claim ~~[[20]]~~ 13, wherein the first and second fixed reflectors and the beam splitter are made of quartz.

Claim 22. (Original) The system of claim 21, wherein outer surfaces of the first and second fixed reflectors are coated with a reflective material.

Claim 23. (Canceled).

Claim 24. (Canceled).